



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,886	07/23/2003	Andrew Wells Phelps	UVD 0299 IA/UD 268	3030

23368 7590 02/26/2007

DINSMORE & SHOHL LLP  
ONE DAYTON CENTRE, ONE SOUTH MAIN STREET  
SUITE 1300  
DAYTON, OH 45402-2023

EXAMINER

ZHENG, LOIS L

ART UNIT

PAPER NUMBER

1742

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/26/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/625,886

Applicant(s)

PHELPS ET AL.

Examiner

Lois Zheng

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8, 10, 11, 35-55, 137 and 140-163 is/are pending in the application.
- 4a) Of the above claim(s) 39, 40 and 48-50 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10, 11, 35-38, 41-47, 51-55, 137 and 140-163 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/9/06</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 30 November 2006 has been entered.

### ***Status of Claims***

2. Claims 1, 10 and 137 are amended in view of the amendment filed 25 October 2006. Claims 9, 12-34, 56-136 and 138-139 are canceled. Claims 39-40 and 48-50 are withdrawn from consideration. New claims 140-163 are added in view of the amendment. Therefore, claims 1-8, 10-11, 35-38, 41-47, 51-55, 137 and 140-163 are currently under examination.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-7, 10-11, 35-38, 41-42, 44-47, 51-55 and 137 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 98/48075 in view of Bittner et al. US 2003/0185990 A1(Bittner).

Tadokoro et al. US 6,200,672 B1(Tadokoro) is the national stage entry of the PCT publication document WO 98/48075, which is in Japanese. Therefore, the examiner will use the teachings of Tadokoro for the rejection of the instant claims in this Office Action.

Tadokoro teaches an aqueous metal surface treatment fluid comprising a rare earth element such as tetravalent cerium(col. 5 lines 6-9) and oxyacid anions such as phosphate, tungstate, vanadate anions, wherein the rare earth metal elements and the oxyacid anions form oxyacid compounds(col. 9 lines 28-33). Tadokoro further teaches a rare earth metal complex comprising rare earth elements such as tetravalent cerium and an inorganic compounds such as phosphates, nitrates and sulfates(col. 5 lines 27-31).

However, Tadokoro does not explicitly teach that is coating layer is formed on an anodic coating, a phosphate coating or a black oxide coating as claimed.

Bittner teaches a method for coating a metal surface with an paint like coating comprising at least one rare earth element compound(paragraphs [0110],[0116]). Bittner further teaches that the metal substrate can be pretreated with phosphate to provide temporary protection of the metal surface(paragraph [0007]).

Therefore, it would have been obvious to one of ordinary skill in the art to have pretreated the metal surface of Tadokoro with the phosphate(i.e. forming a phosphate base coating layer) as taught by Bittner prior to the application of rare earth metal containing coating composition of Tadokoro in order to provide temporary protection of the metal surface as taught by Bittner.

Art Unit: 1742

Regarding claims 1 and 10-11, the tetravalent cerium of Tadokoro in view of Bittner reads on the claimed rare earth element and the phosphate, tungstate, vanadate, sulfate and nitrate of Tadokoro in view of Bittner read on the claimed inorganic valence stabilizer. The oxyacid compound or the rare earth metal complex of Tadokoro in view of Bittner reads on the claimed rare earth/valence stabilizer complex.

Regarding claims 2-3 and 137, Tadokoro further teaches that the solubility of the rare earth metal complex is no greater than 0.01 mol/l (col. 5 lines 36-38). Since about 25°C reads on room temperature and 760Torr is atmospheric pressure, the examiner asserts that the solubility of no greater than 0.01 mol/l as taught by Tadokoro in view of Bittner overlaps the solubility of about  $5 \times 10^{-1}$  and about  $1 \times 10^{-5}$  mol/l as recited in instant claim 2 and the solubility of about  $5 \times 10^{-2}$  and about  $5 \times 10^{-5}$  mol/l as recited in instant claim 3. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed solubility from the solubility of Tadokoro in view of Bittner would have been obvious to one of ordinary skill in the art since Tadokoro in view of Bittner teach the same utilities in their disclosed solubility range.

With respect to the amended feature of "[t]he valence stabilizer consists essentially of an inorganic valence stabilizer" as recited in instant claims 1 and 163, Tadokoro still anticipates the instant claims 1 and 137 since applicant uses semi-open transitional phrase "consisting essentially of", which does not exclude the presence of additional elements, such as the organic compound of Tadokoro, as long as the additional elements do not materially effect the characteristics of applicant's invention. See MPEP 2111.03 [R-2]. It is well settled that if an applicant contends that additional

Art Unit: 1742

steps or materials in the prior art are excluded by the recitation of "consisting essentially of," applicant has the burden of showing that the introduction of additional steps or components would materially change the characteristics of applicant's invention. In re De Lajarte, 337 F.2d 870, 143 USPQ 256 (CCPA 1964). See also Ex parte Hoffman, 12 USPQ2d 1061, 1063-64 (Bd. Pat. App. & Inter. 1989).

Regarding claim 4, since Tadokoro in view of Bittner teach the claimed rare earth/valence stabilizer, the electrostatic barrier layer around the rare earth/valence stabilizer complex is inherent present as claimed.

Regarding claim 5, since Tadokoro in view of Bittner teach the claimed rare earth/valence stabilizer complex, the function of the rare earth/valence stabilizer complex as an ion exchange agent towards corrosive ions is implicitly taught.

Regarding claim 6, Tadokoro in view of Bittner teach the claimed phosphate compound.

Regarding claim 7, since Tadokoro in view of Bittner teach a rare earth metal complex, the claimed central cavity containing cerium is inherently present in the rare earth metal complex. In addition, since specifics of the additional ions are not recited in the claim, any ions, such as impurities in the cavity of the rare earth metal complex, can read on the claimed additional ion.

Regarding claims 35-38, Tadokoro teaches the presence of cerium ions which read on the claimed cationic solubility control agent. Tadokoro further teaches the presence of calcium, zinc, lanthanum, hydrogen, zirconium and titanium ions(col. 10 lines 9-18) which also read on the claimed cationic solubility control agent.

Regarding claims 41-42, Bittner further teaches the addition of electrically conducting particles such as molybdenum sulfide, graphite and/or carbon black to the paint like coating(paragraphs [0010], [0081]) if the metal sheets are to be joined by welding. Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the molybdenum sulfide, graphite and/or carbon black as taught by Bittner into the coating composition of Tadokoro since Bittner teaches that the presents of these electrically conductive particles benefit the welding of coated metal parts. In addition, the molybdenum sulfide, graphite and carbon black particles as taught by Tadokoro in view of Bittner also inherently functions as lubricity agents as claimed.

Regarding claim 44, Bittner further teaches the addition of a color pigment into the paint like coating(paragraph [0194]). Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the color pigment as taught by Bittner into the coating of Tadokoro in order to provide coating with desirable decorative color.

Regarding claim 45-47, the carbon black and graphite as taught by Tadokoro in view of Bittner reads on the claimed active UV blocker.

Regarding claims 51-53 and 55, Tadokoro further teaches the addition of phosphoric acid in the coating composition(col. 7 lines 45-55). Therefore, the phosphoric acid as taught by Tadokoro in view of Bittner reads on the claimed nonionic surfactant as a wetting agent and the claimed agent, which prevents smudging.

Regarding claim 54, even though Tadokoro in view of Bittner do not explicitly teach the claimed wetting agent concentration of less than about 5g/l, one of ordinary skill in the art would have found routinely optimized the concentration of the phosphoric

Art Unit: 1742

acid in the coating composition of Tadokoro in view of Bittner to arrived at the claimed concentration since Tadokoro teaches the amount of phosphoric acid should not notably impair the stability of the are earth metal complex(col. 7 lines 45-55).

5. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tadokoro in view of Bittner, and further in view of Gulley US 5,330,588(Gulley).

The teachings of Tadokoro in view of Bittner are discussed in paragraph 5 above. However, Tadokoro in view of Bittner do not explicitly teach the claimed a soft metal selected from tin, indium, silver or combinations thereof as the lubricity agent.

Gulley teaches the use of silver in a chemisorption layer on a metal part as a lubricant in order to averts high frictional forces(col. 3 lines 52-58).

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated silver as lubricant as taught by Gulley into the coating composition of Tadokoro in view of Bittner in order to avert high frictional forces as taught by Gulley.

6. Claims 1-7, 9-11, 35-38, 41-42, 44-47, and 137 are rejected under 35 U.S.C. 103(a) as being unpatentable over DePue et al. US 5,322,560(DePue) in view of Buttiner.

DePue teaches a slightly water soluble corrosion inhibitor compound in an aqueous solution for treating aluminum flake pigment(abstract). The corrosion inhibitor compound comprises a rare earth metal such as tetravalent cerium(col. 2 lines 55-60), a silicon salt and a metal oxo-complexes of Ti, V, Cr, Zr, Nb, Mo, Hf, Ta and W(col. 2 lines 27-36, col. 3 lines 17-22).



However, DePue does not explicitly teach that a coating layer is formed on an anodic coating, a phosphate coating or a black oxide coating as claimed.

The teachings of Bittner are discussed in paragraph 3 above. Therefore, it would have been obvious to one of ordinary skill in the art to have pretreated the metal surface of DePue with the phosphate (i.e. forming a phosphate base coating layer) as taught by Bittner prior to the application of rare earth metal containing coating composition of DePue in order to provide temporary protection of the metal surface as taught by Bittner.

Regarding claim 1, 10-11 and 137, the tetravalent cerium as taught by DePue in view of Bittner reads on the claimed rare earth element and the oxo-complexes of Ti, V, Cr, Zr, Nb, Mo, Hf, Ta and W reads on the claimed inorganic valence stabilizer. In addition, since the corrosion inhibiting compound of DePue in view of Bittner is slightly soluble in water, it meets the limitation of "sparingly soluble in water at about 25°C and about 760 Torr" as recited in instant claim 137. Therefore, the claimed rare earth/valence stabilizer complex is inherently present in the corrosion inhibiting compound of DePue in view of Bittner.

With respect to the amended feature of "[t]he valence stabilizer consists essentially of an inorganic valence stabilizer" as recited in instant claims 1 and 163, Tadokoro still anticipates the instant claims 1 and 163 since applicant uses semi-open transitional phrase "consisting essentially of", which does not exclude the presence of additional elements as long as the additional elements do not materially effect the characteristics of applicant's invention. See MPEP 2111.03 [R-2]. It is well settled that

Art Unit: 1742

if an applicant contends that additional steps or materials in the prior art are excluded by the recitation of "consisting essentially of," applicant has the burden of showing that the introduction of additional steps or components would materially change the characteristics of applicant's invention. In re De Lajarte, 337 F.2d 870, 143 USPQ 256 (CCPA 1964). See also Ex parte Hoffman, 12 USPQ2d 1061, 1063-64 (Bd. Pat. App. & Inter. 1989).

Regarding claims 2-3, DePue further teaches the solubility of the corrosion inhibiting compound is no more than  $10^{-3}$  m/l (col. 3 lines 4-6), which overlaps the solubility of about  $5 \times 10^{-1}$  and about  $1 \times 10^{-5}$  mol/l as recited in instant claim 2 and the solubility of about  $5 \times 10^{-2}$  and about  $5 \times 10^{-5}$  mol/l as recited in instant claim 3. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed solubility from the solubility of DePue in view of Bittner would have been obvious to one of ordinary skill in the art since DePue in view of Bittner teach the same utilities in their disclosed solubility range.

Regarding claims 4-5, since DePue in view of Bittner implicitly teaches the claimed rare earth/valence stabilizer complex, the claimed electrostatic barrier layer is also inherently present around the rare earth/valence stabilizer complex of DePue in view of Bittner as recited in instant claim 4. The rare earth/valence stabilizer complex of DePue in view of Bittner is also inherently capable of acting as an ion exchange agent towards corrosive ions as recited in instant claim 5.

Regarding claim 6, DePue teaches the presence of metal oxo-complexes (i.e. oxides). DePue further teaches polymer solvents for the corrosion inhibiting compound

Art Unit: 1742

(col. 3 lines 35-43). Therefore, DePue in view of Bittner teaches the claimed oxide compound and the claimed polymer as recited in instant claim 6.

Regarding claims 7, since DePue in view of Bittner teaches the claimed rare earth/valence stabilizer complex, it also inherently teaches the central cavity containing cerium as recited in instant claim 7. In addition, since specifics of the additional ions are not recited in the claim, any ions, such as impurities in the cavity of the rare earth metal complex, can read on the claimed additional ion.

Regarding claims 35-38, DePue further teaches the presence of Na ions from the metal oxo-complexes(col. 3 lines 17-22), which reads on the cationic solubility control agent as claimed. In addition, the Ce, Ti, Zr, V, Cr, W, Mo, Nb, Hf, Ta as taught by DePue(col. 2 lines 27-36, col. 3 lines 17-22) in view of Bittner also read on the claimed cationic solubility control agent.

Regarding claims 41-42, Bittner further teaches the addition of electrically conducting particles such as molybdenum sulfide, graphite and/or carbon black to the paint like coating(paragraphs [0010], [0081]) if the metal sheets are to be joined by welding. Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the molybdenum sulfide, graphite and/or carbon black as taught by Bittner into the coating composition of DePue since Bittner teaches that the presents of these electrically conductive particles benefit the welding of coated metal parts. In addition, the molybdenum sulfide, graphite and carbon black particles as taught by DePue in view of Bittner also inherently functions as lubricity agents as claimed.

Regarding claim 44, DePue teaches that the coating prepared by applying the corrosion inhibiting compound contains is colored as claimed.

Regarding claim 45-47, the carbon black and graphite as taught by DePue in view of Bittner reads on the claimed active UV blocker.

7. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over DePue in view of Bittner, and further in view of Gulley.

The teachings of DePue in view of Bittner are discussed in paragraph 7 above. However, DePue in view of Bittner do not explicitly teach the claimed a soft metal selected from tin, indium, silver or combinations thereof as the lubricity agent.

Gulley teaches the use of silver in a chemisorption layer on a metal part as a lubricant in order to averts high frictional forces(col. 3 lines 52-58).

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated silver as lubricant as taught by Gulley into the coating composition of DePue in view of Bittner in order to avert high frictional forces as taught by Gulley.

***Allowable Subject Matter***

8. Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Claims 140-163 are allowed.

10. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not teach or fairly suggest, either alone or in combination, the claimed solid corrosion-inhibiting seal comprising the claimed rare

Art Unit: 1742

earth/valence stabilizer complex, at least one rare earth element is in tetravalent oxidation state and the rare earth/valence stabilizer complex has a central cavity containing a cerium, praseodymium, or terbium ion and an additional ion as listed in instant claim 137.

### ***Response to Arguments***

11. Applicant's arguments filed 25 October 2006 have been considered but are partially moot in view of the new ground(s) of rejection.

Applicant argues that Tadokoro teaches a complex between a rare earth element and an organic compound and the inorganic compound it only added as a ligand and the inorganic compound it only added as a ligand and Tadokoro does not teach that "the valence stabilizer consists essentially of an inorganic valence stabilizer".

The examiner does not find applicant's argument persuasive since Tadokoro teaches that the rare earth metal complex also contains an inorganic compound as a ligand(col. 5 lines 24-27). Therefore, Tadokoro seems to include the inorganic compound, even though function as a ligand, as part of the rare earth metal complex. Since applicant only uses semi-open transitional phrase "consisting essentially of" the examiner concludes that the coating of Tadokoro meets the limitations of the instant invention absent of factual evidence demonstrating that the additional presence of organic compound materially effects the characteristics of the instant invention.

Applicant further argues that neither Tadokoro nor DePue teaches the claimed additional ion in the central cavity of the rare earth metal complex.

The examiner respectfully disagrees. Any coating solution would contain a certain level of impurities and the impurities are randomly distributed. Therefore, the impurities in the coating solutions of Tadokoro or Depue would also be randomly distributed through out the coating solutions including the central cavity of the rare earth metal complex. Therefore, any impurity in the central cavity of the rare earth metal complex would read on the claimed additional ion.

Applicant further argues that neither Tadokoro nor DePue teach the use of solubility control agents as claimed.

The examiner does not find applicant's argument persuasive since Tadokoro teaches the claimed cerium, calcium, zinc, lanthanum, hydrogen, zirconium and titanium ions present in its coating composition and DePue teaches presence of Na, Ce, Ti, Zr, V, Cr, W, Mo, Nb, Hf, Ta ions in the coating composition. Therefore, their function as a solubility control agent is inherently present in these cations. In addition, the instant claims do not require solubility control agent to be part of the rare earth metal complex. The solubility control agent as claimed only need to be present in the coating seal.

Applicant further argues that DePue teaches a soluble rare earth metal salt, not a rare earth metal complex as claimed.

The examiner does not find applicant's argument persuasive since DePue teaches a slightly water soluble corrosion inhibitor compound which is a product of a rare earth metal salt, a metal oxo-complex and a silicon salt. The rejection ground is based on this slightly water soluble corrosion inhibitor compound in an aqueous solution as taught by DePue, which read on the claimed rare earth metal/valence stabilizer

Art Unit: 1742

complex. The examiner is not relying on DePue's teaching of soluble rare earth metal salt to reject the claimed rare earth metal/valence stabilizer complex.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LLZ

ROY KING  
SUPERVISOR, EXAMINER  
FOR 1742